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| EXAMINER |
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KAU, STEVEN Y

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| ART UNIT | PAPER NUMBER |
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2625

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02/28/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/631,038

Applicant(s)

YU ET AL.

Examiner

Steven Kau

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 December 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-5, 14-20 and 22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5, 14-20 and 22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 04 November 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- 1) ☐ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Response to Arguments

1. This action is responsive to the following communication: an Amendment filed on December 10, 2007.

- Claims 6-13 and 21 have been cancelled.
- Claims 1 and 14 have been amended and claim 22 has been newly added as an independent claim.
- Claims 1-5, 14-20 and 22 are currently pending.
- Applicant's arguments filed on December 10, 2007 have been fully considered but are moot in view of the new ground(s) of rejection.

Applicant's arguments have been fully considered but they are not persuasive. Specifically in response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., input parameter values of each de-blocking, de-ringing, color space conversion, image resizing bit-reduction and dithering) are not specified in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). The examiner also references the applicant to the claims rejection section below for the explanation on how the prior art references read on the amended claims.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 1-5, 14-20 and 22 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Independent claims 1 and 14 have been amended and claim 22 has been newly added. These claims introduce subject matter which was not disclosed in the original specification. Claims 1 and 14, recite, "a pre-defined overall complexity", and claim 22, recites, "pre-defined complexity", which was not originally disclosed in the specification.

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 1-5, 14-20 and 22 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claims 12, 14 and 22 recite, in the preamble, "for adaptive post-processing of media data in an electronic device" and in the claim, recite, "pre-defined overall complexity", "lower complexity" and "overall complexity" (emphasis added). Applicants failed to particularly point out which electronic

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device (e.g. which mobile device or non-mobile device) is being regarded as the invention; and failed to particularly point out what is the "pre-defined overall complexity", "pre-defined complexity" and "overall complexity" means. For instance, what is range or degree of "pre-defined overall complexity", "pre-defined complexity" and "overall complexity", what are the parameters used to construct the "complexity", and in what range of the complexity is defined as "lower complexity"?

The examiner will give a reasonable broadest interpretation in the application prosecution.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

7. Claims 1 and 5 are rejected under 35 U.S.C. 102(e) as being anticipated by Zhong et al (Zhong) (US 2004/0247034).

Regarding claim 1.

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Zhong discloses a system (Computer System 500 of Fig. 5) suitable for adaptive post-processing of media data in an electronic device (e.g. video device with MPEG compression, Par 23), the system comprising:

- a. one or more post-processing modules (post-processing module 611 of Fig. 6), the post-processing modules performing post-processing of the media data (such video image data, Par. 36), each post-processing module comprising one or more processing modes with different complexities (e.g. complexities including removing blocking artifacts in both horizontal and vertical direction; performing two-stages de-ringing process, etc. Par 11); and
- b. an adaptive mode decision module (e.g. central processing unit issues commands for post-processing module) coupled to the post-processing modules (CPU 505 coupled with Module 611, Figs. 5-7, and Par 10), wherein the adaptive mode decision module decides a suitable processing mode to be used in each of the post-processing modules (CPU issues command for post-processing, see example in Figs 7 & 8), the decision being based on a pre-defined overall complexity (e.g. horizontal and vertical block artifact removal and two-stages de-ringing process, Par. 11) of each of one or more combinations of the one or more processing modes (Fig. 4 teaches decision making for either filtering blocking and ringing artifacts in 2-dimensional or not, and de-blocking/de-ringing processing are then being taken in place accordingly, Pars. 26-27), the overall complexity (e.g. the complexity of de-blocking/de-ringing in either two-dimensional or one-dimensional) for each of the combinations corresponding to one or more values of input parameters (CPU has to issue a command for decision making for either 2D or 1D

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de-blocking and or de-ringing, this implies that there must be input parameters to CPU via Input 512 of Fig. 5 for the post-processing and to perform module processing; for example, instructions are given to post-process controller 720 or PPC 720 of Fig. 8 to process de-blocking and de-ringing; Figs. 3-5, 7 & 8, Pars. 23-24 & 43), the input parameters being representative of the state of the electronic device (input parameters are representative of the state of a video device for either 1D or 2D de-blocking and or de-ringing, Pars. 23-24).

Regarding claim 5.

Zhong discloses wherein one of the input parameters is user preference (e.g. instructions received by PCC 720 of Fig. 8 must have the user's preference for artifacts removal; for example, determine whether removing blocking vertically or horizontally in Fig. 8), the user preference indicating choice of output quality of the media data (Pars. 41 teaches artifacts are substantially removed).

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Zhong et al (Zhong) (US 2004/0247034) as applied to claim 1 above, and further in view of Peng et al (Peng) (US 6,704,362).

Regarding claim 2.

Zhong teaches wherein the adaptive mode decision module comprises: (a). an input module (input device 512 and associated memory of Fig 5, Para. [0033] and [0039]), the input module receiving the input parameters (instructions given to PPC 720 of Fig. 8 for artifacts removal), and (c). an output module coupled to the input module and the table module, the output module selecting the suitable processing modes of the post-processing modules (Para. [0059]).

Zhong differs from claim 2, in that he does not teach that (b). a table module relating the processing modes of the post-processing modules and all possible values of the input parameters.

Peng teaches that a table module relating the processing modes of the post-processing modules and all possible values of the input parameters (Fig. 2 teaches a complexity table for complexity requirements; for instance, bandwidth consumption, PCU processing power, etc. col 3, line 66 through col 4, line 5).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have modified Zhong to include a table module relating the processing modes of the post-processing modules and all possible values of the input parameters taught by Peng because the availability of computer resources is changed over time depending on the system load, and therefore, the complexity levels are necessary to be dynamically adapted to the available resources for post-processing (col 1, lines 36-47).

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10. Claims 3 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zhong et al (Zhong) (US 2004/0247034) as applied to Claim 1 above, and further in view of Clark (US 6,142,942).

Regarding **claim 3**, Zhong differs from claim 3, in that he does not teach wherein one of the input parameters is remaining battery power of the electronic device.

Clark teaches wherein one of the input parameters is remaining battery power of the electronic device (col 12, lines 25-46).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have modified Zhong to include one of the input parameters is remaining battery power of the electronic device taught by Clark to eliminate manual adjust filter settings (col 3 , lines 5-7).

Regarding **claim 4**, Zhong differs from claim 4, in that he does not expressly teach wherein one of the input parameters is processor usage of the electronic device.

Clark teaches wherein one of the input parameters is processor usage of the electronic device (Controller 69 of Fig. 2A & 2B, controller (processor) is configured to generate the filter parameters based upon one or more signal constraints that are input by a user/operator/designer and based upon one or more sample signal statistics associated with one or more sample input or output signals of col 2, lines 17-39).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have modified Zhong include one of the input parameters is processor usage of the electronic device taught by Clark to eliminate manual adjust filter settings (col 3 , lines 5-7).

11. Claims 14-20 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zhong et al (Zhong) (US 2004/0247034) in view of Peng et al (Peng) (US 6,704,362).

Regarding claim 22.

Zhong discloses A computer program product for use with a computer, the computer program product comprising a computer (Computer System 500 of Fig. 5) usable medium having a computer readable program code embodied therein for adaptive post-processing of media data in an electronic device (e.g. video device with MPEG compression, Par 23), the post-processing being performed using one or more post-processing modules (Module 611 of Fig. 6), each of the post-processing modules comprising one or more processing modes (e.g. de-blocking and or de-ringing, Fig. 3), each of the processing modes having different complexities (e.g. 1D or 2D de-blocking and or de-ring process, Fig. 4, Par 26 & 27), the computer program code performing:

- i. obtaining (receiving, Figs. 4 & 8) the one or more processing modes (processing modes of de-blocking and de-ringing, Figs. 4 & 7; for instance, blocking filtering and ringing filtering in Fig. 7) available in the post-processing modules (processing modules of de-blocking and de-ringing of Post-Processing 300 in Fig. 3 and module 611 of Fig. 6);
- ii. obtaining (receiving, Figs. 4 & 8) all combinations of processing modes (de-blocking and de-ringing, Figs 3, 4 & 8), each combination containing one processing mode from

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each processing module (Figs. 3, 5, 6 & 7 and Pars 26-27 teaches combination of processing module and processing mode);

iii. obtaining output quality for each combination of the processing mode (e.g. horizontal and vertical artifacts are substantially reduced in second pass of the process, Par 41);

iv. arranging the combinations of processing modes in increasing order of complexity (Figs. 4 and 8 teaches arrangement of complexity like 1D versus 2D, horizontal versus vertical, one pass versus two passes of de-blocking and de-ringing process; Pars 40-43);

v. eliminating the combinations that do not give higher quality compared to the combinations having lower complexity (Fig. 4 teaches that there is a decision making step to by-pass or eliminating de-blocking and de-ringing 2D process); and

vi. allocating ranges of input parameter values for each combination of processing modes (e.g. instructions given to PPC 720 of Fig 8 must includes a set or range of input parameter values for de-blocking and de-ringing process).

b. obtaining the one or more input parameters (receiving instructions, Fig. 8), the input parameters being representative of the state of the electronic device (video device with MPEG compression);

c. selecting a suitable processing mode in each of the post-processing modules (e.g. determining either 2D or 1D, horizontal or vertical or both, one-pass or two-pass, Figs. 4 & 8, Par 41) with a pre-defined complexity (e.g. from the instruction given to PPC 720); and

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d. performing post-processing of the media data using the selected processing mode (Fig. 4 and 8, Pars. 26-27 & 42-43)

Zhong differs from claim 22, in that he does not teach generating a table for relating the one or more processing modes with one or more input parameters.

Peng teaches generating a table for relating the one or more processing modes with one or more input parameters (Fig. 2 teaches a complexity table for complexity requirements; for instance, bandwidth consumption, PCU processing power, etc. col 3, line 66 through col 4, line 5).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have modified Zhong to include generating a table for relating the one or more processing modes with one or more input parameters taught by Peng because the availability of computer resources is changed over time depending on the system load, and therefore, the complexity levels are necessary to be dynamically adapted to the available resources for post-processing (col 1, lines 36-47).

Regarding claim 14.

The structure elements of computer program product claim 22 perform all steps of claim 14. Thus claim 14 is rejected under 103(a) for the same reason discussed in the rejection of claim 22.

Regarding **claim 15**, Zhong discloses wherein the computer program code for obtaining the values of one or more input parameters comprises a computer program code for continuously monitoring the values of the input parameters (Figures 2-10, Para. [0039]).

Regarding **claim 16**, Zhong discloses wherein the computer program code for selecting the suitable processing modes comprises a computer program code (Para. [0039]), and defining the suitable processing modes to be used for a given range of input parameter values (Figures 7 & 9, Para. [0045]).

Zhong differs from claim 16, in that he does not teach that generating a table.

Peng teaches that generating a table (Fig. 2 teaches a complexity table for complexity requirements; for instance, bandwidth consumption, PCU processing power, etc. col 3, line 66 through col 4, line 5).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have modified Zhong to include generating a table taught by Peng because the availability of computer resources is changed over time depending on the system load, and therefore, the complexity levels are necessary to be dynamically adapted to the available resources for post-processing (col 1, lines 36-47).

Regarding **claim 17**, the structure elements of system claim 22 perform all steps of computer program product claim 17. Thus claim 17 is rejected under 103(a) for the same reason discussed in the rejection of claim 22.

Regarding **claim 20**, Zhong discloses wherein one of the input parameters is user preference (e.g. instructions received by PCC 720 of Fig. 8 must have the user's preference for artifacts removal; for example, determine whether removing blocking vertically or horizontally in Fig. 8), the user preference indicating choice of output quality of the media data (Pars. 41 teaches artifacts are substantially removed).

Claims 18 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zhong et al (Zhong) (US 2004/0247034) in view of Peng et al (Peng) (US 6,704,362) as applied to claim 14 above, and further in view of Clark (US 6,142,942).

Regarding **claim 18**, Zhong differs from claim 18, in that he does not teach wherein one of the input parameters is remaining battery power of the electronic device.

Clark teaches wherein one of the input parameters is remaining battery power of the electronic device (col 12, lines 25-46).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have modified Zhong to include one of the input parameters is remaining battery power of the electronic device taught by Clark to eliminate manual adjust filter settings (col 3 , lines 5-7).

Regarding **claim 19**, Zhong differs from claim 19, in that he does not expressly teach wherein one of the input parameters is processor usage of the electronic device.

Clark teaches wherein one of the input parameters is processor usage of the electronic device (Controller 69 of Fig. 2A & 2B, controller (processor) is configured to generate the filter parameters based upon one or more signal constraints that are input by a user/operator/designer and based upon one or more sample signal statistics associated with one or more sample input or output signals of col 2, lines 17-39).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have modified Zhong include one of the input parameters is processor usage of the electronic device taught by Clark to eliminate manual adjust filter settings (col 3 , lines 5-7).

Conclusion

12. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Steven Kau whose telephone number is 571-270-1120 and fax number is 571-270-2120. The examiner can normally be reached on Monday to Friday, from 8:30 am -5:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, King Poon can be reached on 571-272-7440. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



S. Kau
Patent Examiner
Division: 2625
February 22, 2008